

Notice of Allowability

Application No.

10/082,072

Examiner

Sath V. Perungavoor

Applicant(s)

YAMAGUCHI, TOMOHIRO

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/12/2005.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 26 February 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

EXAMINER'S AMENDMENT

[1] An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312.

To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

[2] Authorization for this examiner's amendment was given in a telephone interview with Mr. Kevin B. McGoff (Reg. No. 53, 297) on August 24, 2005.

[3] The application has been amended as follows:

Claim 1

1. (Currently Amended) An image processing apparatus for conducting edge enhancement processing on an original image, comprising:

an enhancement amount calculation unit for calculating a density enhancement amount for each edge pixel of the original image, each density enhancement amount being an incremental value to be applied to a pixel value of the respective edge pixel to obtain an enhanced pixel value, the each edge pixel being a pixel in an edge area in the image;

an enhancement amount processing unit for correcting the density enhancement amount for each edge pixel in a manner to reduce variations in the density enhancement amounts in the overall edge area;

a density processing unit for correcting a density of each edge pixel of the original image in a manner to reduce variations in densities in the overall edge area; and

a density calculation unit for calculating an enhanced density of each edge pixel from the corrected density and the corrected density enhancement amount.

Claim 6

6. (Currently Amended) An image processing apparatus for conducting edge enhancement processing on image data, comprising:

a judgment unit for judging whether a target pixel is an edge pixel which is in an edge area, based on the image data;

an enhancement amount calculation unit for calculating first data expressing an edge enhancement amount for the target pixel based on the image data, the edge enhancement amount being an incremental value to be applied to a pixel value of the target pixel to obtain an enhanced pixel value of the target pixel;

a first processing unit for changing a value of the first data for the target pixel to a greatest value among first data of a) the target pixel and b) a plurality of pixels surrounding the target pixel;

a second processing unit for changing a value of the image data of the target pixel to a greatest value among image data of a) the target pixel and b) a plurality of pixels surrounding the target pixel; and

an addition unit for adding the changed first data to the changed image data of the target pixel that is judged to be an edge pixel by the judgment unit, and for outputting the resulting data.

Claim 8

8. (Currently Amended) An image processing method for conducting edge enhancement processing on an original image, the method comprising steps of:

calculating a density enhancement amount for each edge pixel of the original image, ~~the~~ each edge pixel being a pixel in an edge area in the image, each density enhancement amount being an

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incremental value to be applied to a pixel value of the respective edge pixel to obtain an enhanced pixel value;

increasing the density enhancement amount for each edge pixel in manner to reduce variations in the density enhancement amounts in the overall edge area;

increasing density of each edge pixel of the original image in a manner to reduce variations in densities in the overall edge area; and

calculating enhanced density of each edge pixel by adding the increased density enhancement amount to the increased density.

REASONS FOR ALLOWANCE

[4] The following is an examiner's statement of reasons for allowance: The instant invention is method and apparatus directed toward edge enhancement.

Regarding claim 1, relevant prior art was found and applied as set forth in the non-final and final office actions. However, during an interview with the Examiner on July 19, 2005 (after the final office action), applicant's representative lucidly directed the Examiner to a crucial difference between the instant invention and the prior art of record. Accordingly, in view of the applicant's representative arguments Examiner agreed to withdraw the previously made 103 (a) rejections.

The crucial feature being **“enhancement amount being an incremental value to be applied to a pixel value of the respective edge pixel to obtain an enhanced pixel value”**. This feature has been incorporated into the independent claims through the Examiner's amendment above.

When the aforementioned feature is applied to form a new claim interpretation (instead of the previously made broadest reasonable interpretation), this alludes to a distinct feature of the instant invention, which are not found in the prior art, either singularly or in combination. The distinct feature being **an enhancement amount processing unit for correcting the density enhancement amount for each edge pixel in a manner to reduce variations in the density enhancement amounts in the overall edge area.**

Similarly, independent claims 6 and 8 are also recite the distinct feature. Claim 6 recites a narrower version of the enhancement amount processing unit (i.e. the limitations in claim 2).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

[5] Claims 1-9 are allowed.

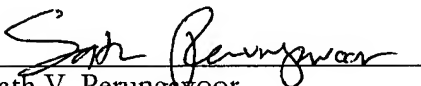
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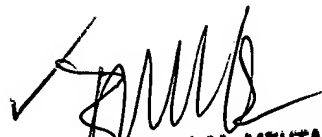
Contact Information

[6] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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Date: August 26, 2005


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